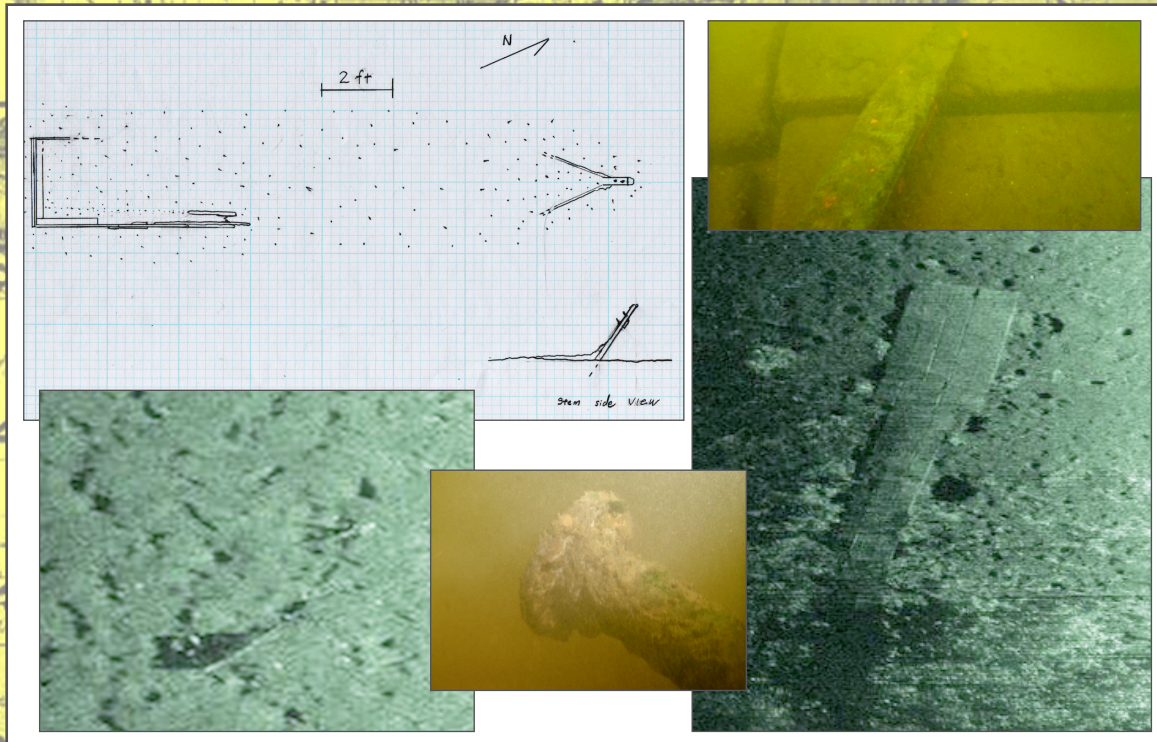


# MARITIME HERITAGE MINNESOTA



Ann Merriman  
Christopher Olson

## Minnesota Suburban Lakes Nautical Archaeology 3 Project Report: Lake Johanna



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## Acknowledgments

Maritime Heritage Minnesota (MHM) thanks the People of Minnesota for their support of the Minnesota Historical and Cultural Heritage Grant program of the Arts and Cultural Heritage Fund of the Clean Water, Land and Legacy Amendment; without the MHCH Grant that MHM received to conduct this project, the work would not have been undertaken. MHM would also like to acknowledge the Grants Office of the Minnesota Historical Society for their expertise. We thank Bruce Koenen and Amanda Gronhvd of the Office of the State Archaeologist for their efforts. MHM could not have completed this project without the in-kind support of volunteer divers Josh Knutson, Kelly Nehowig, Mark Slick, and Ed Nelson; MHM thanks these talented and ethical men for their time and skill. We also thank our volunteer Betty Lloyd for her constant support. Lastly, MHM thanks our Board of Trustees Mike Kramer, Deb Handschin, and Steve Hack for their continued support of MHM's Mission.

Underwater Archaeologist  
Christopher Olson



Underwater Archaeologist  
Ann Merriman



Volunteer Diver  
Kelly Nehowig



Volunteer Diver  
Mark Slick



Volunteer Diver  
Ed Nelson



Volunteer Diver  
Josh Knutson



Trustee  
Steve Hack



Chair  
Mike Kramer



Mascots & Computing Cats  
Weebles Cat & Rodney Cat



Volunteer  
Betty Lloyd



Volunteer Dive Crew  
Ann Nehowig



Trustee  
Deb Handschin



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MHM IS A 501.(c).3 NON-PROFIT CORPORATION DEDICATED TO THE DOCUMENTATION, CONSERVATION, AND PRESERVATION OF MINNESOTA'S FINITE MARITIME CULTURAL RESOURCES

*“ACHF grants have allowed a small St. Paul-based nonprofit, Maritime Heritage Minnesota (MHM), to re-establish the discipline of underwater archaeology in Minnesota. Without this support, MHM could not have conducted its groundbreaking nautical archeological and maritime historical research.”*

*~Steve Elliott, Former Minnesota Historical Society CEO and Director, January 2015*



## Introduction

Wrecks and the artifacts associated with them tell a story. Removing or otherwise disturbing artifacts, treating them as commodities that can be sold, obliterates that story. Nautical archaeological and maritime sites are finite, and are significant submerged cultural resources. Nautical, maritime, underwater, maritime terrestrial – Maritime Heritage Minnesota's (MHM) deals with all of these types of sites throughout the State of Minnesota. MHM's Mission is to document, conserve, preserve, and when necessary, excavate these finite cultural resources where the welfare of the artifact is paramount. MHM is concerned with protecting our underwater and maritime sites – our shared Maritime History – for their own benefit in order for all Minnesotans to gain the knowledge that can be obtained through their study. MHM's study of wrecks does not include the removal of artifacts or damaging the sites in any way. MHM does not raise wrecks or 'hunt' for 'treasure'. Submerged archaeological sites in Minnesota are subject to the same State statutes as terrestrial sites: the Minnesota Field Archaeology Act (1963), Minnesota Historic Sites Act (1965), the Minnesota Historic District Act (1971), and the Minnesota Private Cemeteries Act (1976) if human remains are associated with a submerged site. Further, the case of *State v. Bollenbach* (1954) and the Federal Abandoned Shipwrecks Act of 1987 provide additional jurisdictional considerations when determining State oversight and "ownership" of resources defined by law as archaeological sites (Marken, Ollendorf, Nunnally, and Anfinson 1997, 3-4). Therefore, just like terrestrial archaeologists working for the State or with contract firms, underwater archaeologists are required to have the necessary education, appropriate credentials, and hold valid licenses from the Office of the State Archaeologist (OSA).



**Respect the Diver Down Flag  
By Law, Stay 150-Foot Away From  
All Diver Down Flags Displayed**





## **Preface**

In 2016, during the Minnesota Suburban Lakes Survey Project (MSLS), MHM surveyed Upper and Lower Prior Lake (1,238 acres, Scott County), Lake Pulaski (702 acres, Wright County), Medicine Lake (886 acres, Hennepin County), Lake Johanna (213 acres, Ramsey County), Lake Sylvia (1,524 acres, Wright County), and Lake Elmo (206 acres, Washington County). Other MHM sonar survey and underwater archaeology projects have taken place in 'smaller' suburban lakes White Bear Lake and Lake Waconia, as well as Lake Minnetonka, the Headwaters Mississippi River, and the Minnesota River. In 2018, during the Minnesota Suburban Lakes Nautical Archaeology 2 Project (MSLNA-2), MHM identified the only 3 recognized wrecks on the bottom of Lake Johanna: the Corrugated Steel Wreck (21-RA-83), the Capsized Fiberglass Catamaran Wreck (Anomaly 29), and the Round Wreck (Anomaly 21). MHM's targeted re-scanning of Lake Johanna using improved down and side-imaging sonar produced significantly more detailed data. Within this data, MHM recognized a 4th wreck (Anomaly 20), images with additional clarify of the Big Dock (Anomaly 22), and 5 other possible sites or objects (Anomalies 24, 25, 27, 30, 31). It was determined that investigation of these anomalies using SCUBA to determine their nature and rudimentarily document them was warranted.

## **Results of the Minnesota Suburban Lakes Nautical Archaeology 3 Project**

### **Research Design**

The purposes of the MSLNA-3 Project was to conduct a targeted remote sensing sonar survey and use underwater archaeological reconnaissance to answer questions about and determine the nature of specific anomalies. The lakes focused on during the project were Prior Lake, Medicine Lake, and Lake Johanna.

### **Methodology**

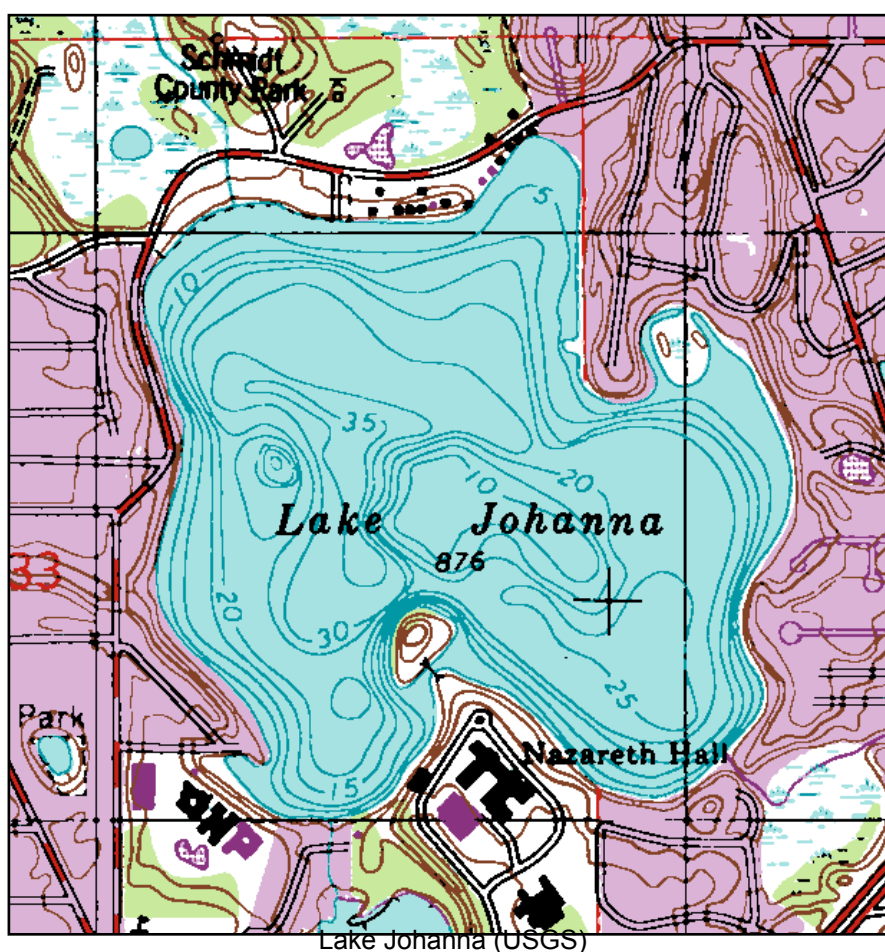
The use of improved sonar equipment to record images with increased detail and clarity directly affects underwater archaeological reconnaissance by facilitating efficient dive planning. Specifically, it eliminates the need to dive on dozens of false targets - unusual bottom contours, rocks, and trees - that often appear to be wrecks and other objects. Further, MHM can identify maritime sites such as docks, boat lifts, dock canopies, and steam boilers to determine if dive reconnaissance on those objects is necessary, depending on their location and other factors. For the MSLNA-3 Project, specific anomalies that were probable wrecks and other submerged cultural resources were chosen for investigation using SCUBA. Also, using data accumulated from the fieldwork as a starting point, MHM conducted research to place newly recognized nautical archaeological sites and anomalies into their historical contexts. Minnesota Archaeological Site Forms were filed with the OSA when appropriate.

### **Results: Lake Johanna**

After the completion of the MSLNA-3 Project fieldwork in Lake Johanna in October 2019, there are now 4 identified wrecks, 4 maritime sites, and 3 other sites or objects on



the lake bottom. Some other anomalies may have not been dove upon yet, but their sonar signatures are detailed enough to allow for their identification; they may be investigated using SCUBA in the future. The anomalies were identified through underwater archaeological reconnaissance fieldwork using SCUBA, digital video, measured drawings, side and down-imaging sonar, and maritime historical research. Of the 4 identified wrecks in Lake Johanna, 2 of them now have Minnesota Archaeological Site numbers. During the MSLNA-3 Project specifically, MHM and a volunteer identified 1 new wreck, 2 new submerged maritime sites, 1 'other' object, and 1 false target. Also during the MSLNA-3 Project, MHM's targeted side and down imaging sonar re-scanning of Lake Johanna using updated sonar equipment allowed for the identification of 2 anomalies as false targets comprised of bottom contours (A24, A25) - without dive reconnaissance.

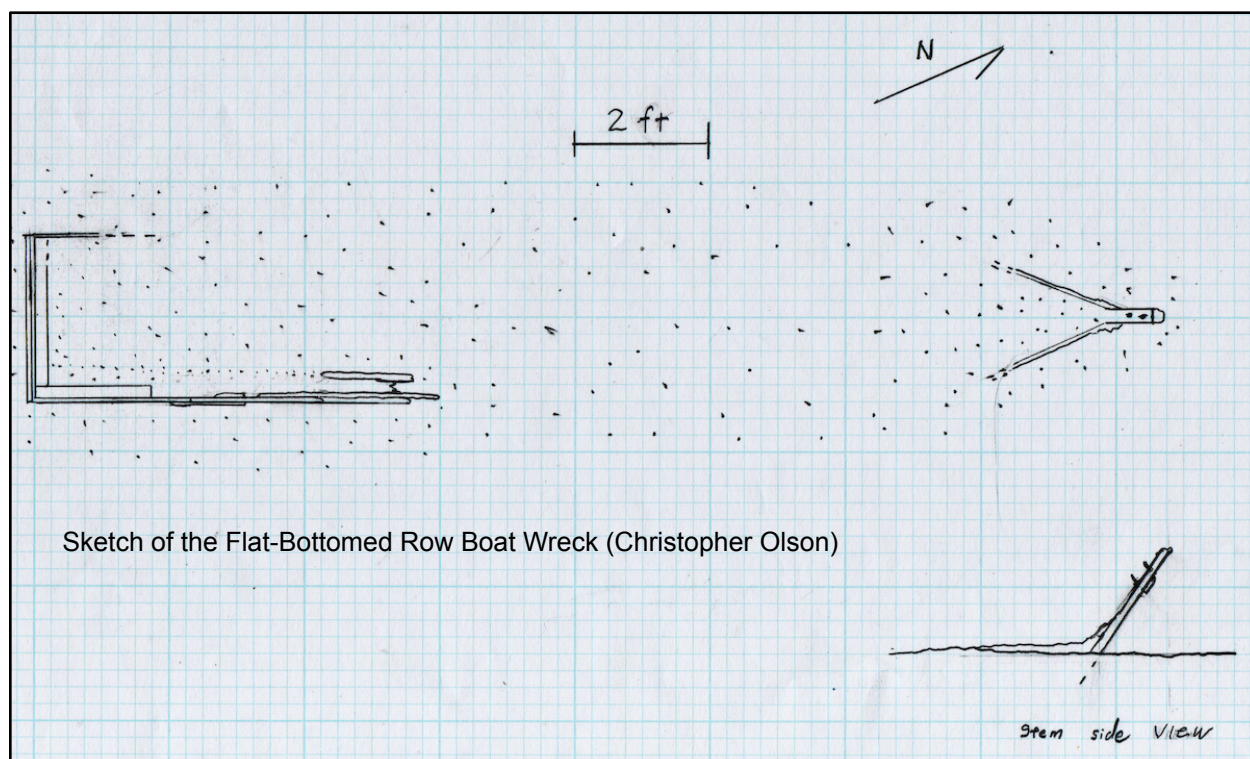
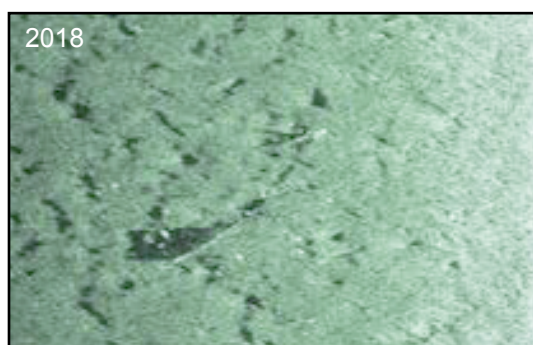


### **Flat-Bottomed Row Boat Wreck, 21-RA-85 (Anomaly 20)**

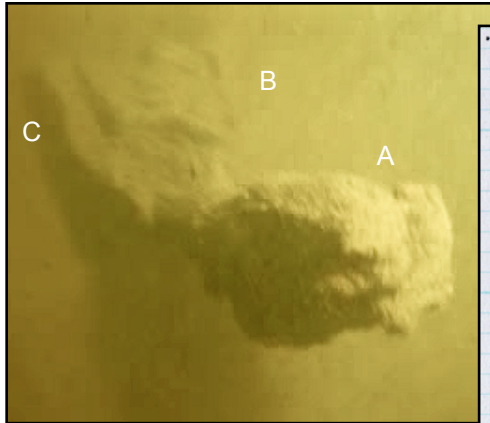
The 2016 sonar images of Anomaly 20 suggested it was a wreck, but it appeared to be mostly buried in silt and a 2019 recording did not shed light on the anomaly's details. As part of the MSLNA-3 Project, Anomaly 20 was investigated using SCUBA and she is a wreck. Anomaly 20 is 16.50 feet long, 2.30 feet in the beam, has a pointed bow, and an intact stempost that rises into the water column. The bow itself has deteriorated, but the stempost remains sturdy, and it has a metal handle attached to its outer surface; the handle is turned vertically and could act as a lifting handle and a towing loop. Partial



strakes survive on both port and starboard near the bow and the amidships section of the wreck is buried. The starboard side quarter is above the silt, with a wide, broken-off strake surviving along with a stringer attached to the hull at the turn of the bilge - a hard chine. Also on the starboard quarter, part of a stringer survives toward the top of the surviving strake and the top edge of the strake is intact at this point - the surviving gunwale. A wide plank is attached to the starboard inner hull and another of the same type is attached on the inner transom. These planks served as supports for a wide stern bench that is no longer extant. The stern is nearly intact; the gunwale is missing on the starboard transom; amidships and to port, it appears to be intact and may have a rounded caprail. The port side stern is covered in silt, but the corner and the top of the port quarter gunwale are just discernible above the silt, enhanced by a small shadow. MHM cannot discern at this time if the bottom of the hull is longitudinally or athwartships planked; if she is athwartships planked, she would be considered a Fisherman's Friend model of small boat. Based upon the wreck's condition, the site details such as the amount of silt build-up over the wreck, MHM contends the Flat Bottomed Row Boat Wreck sank around 1905, a life-span of about 10 years. MHM acquired her Minnesota Archaeological Site Number, 21-RA-85, in January 2020.

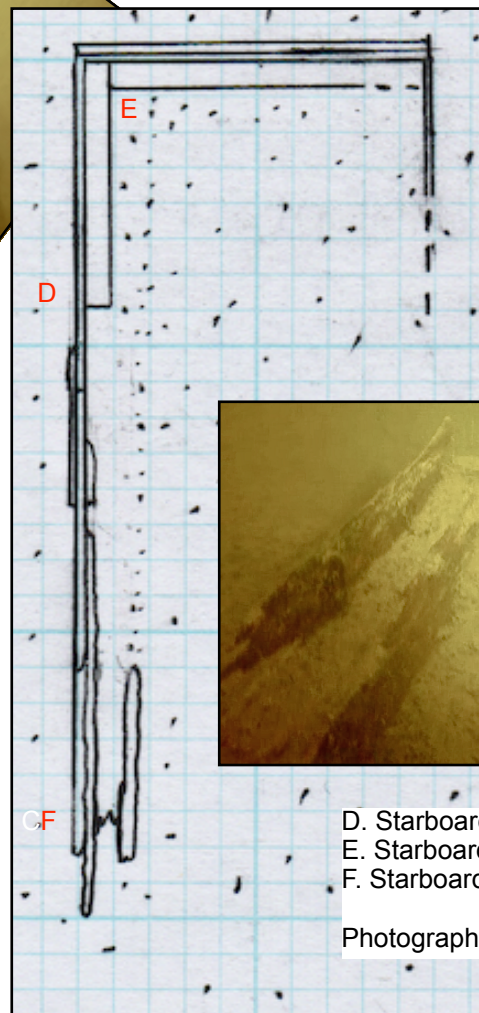
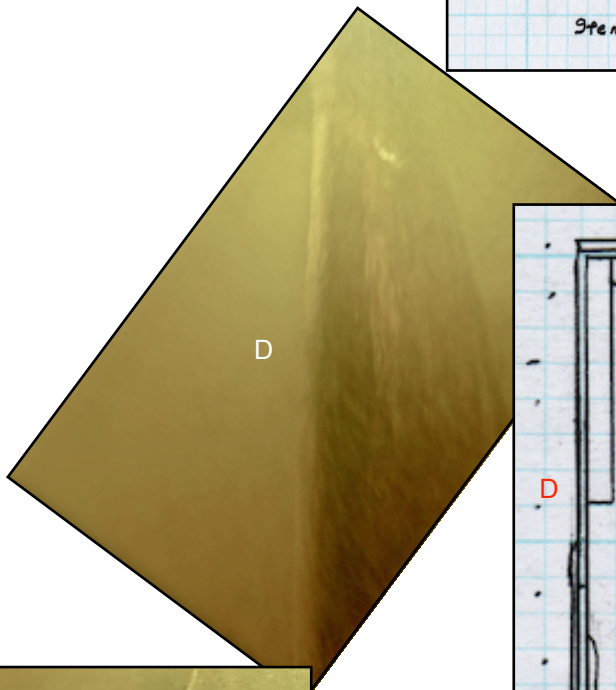
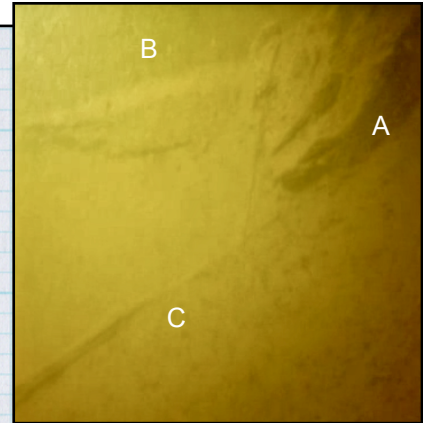
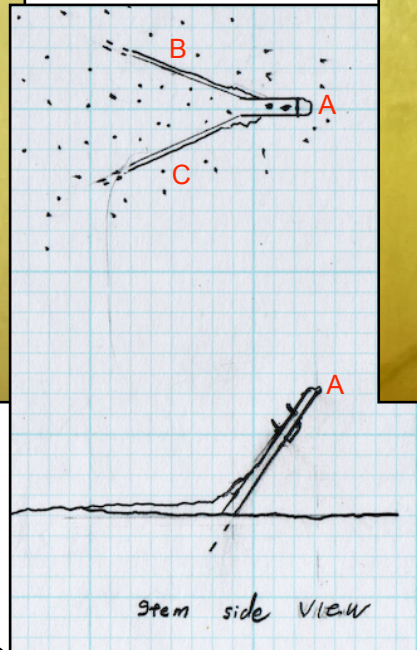






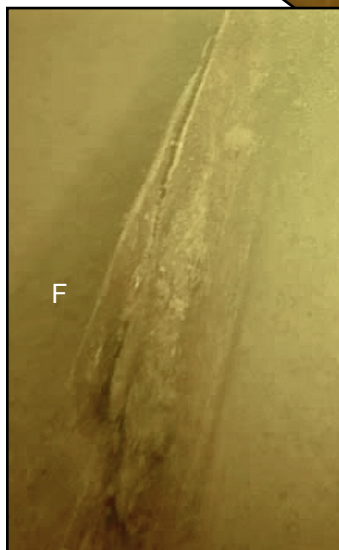
A. Stempost  
B. Port Bow  
C. Starboard Bow

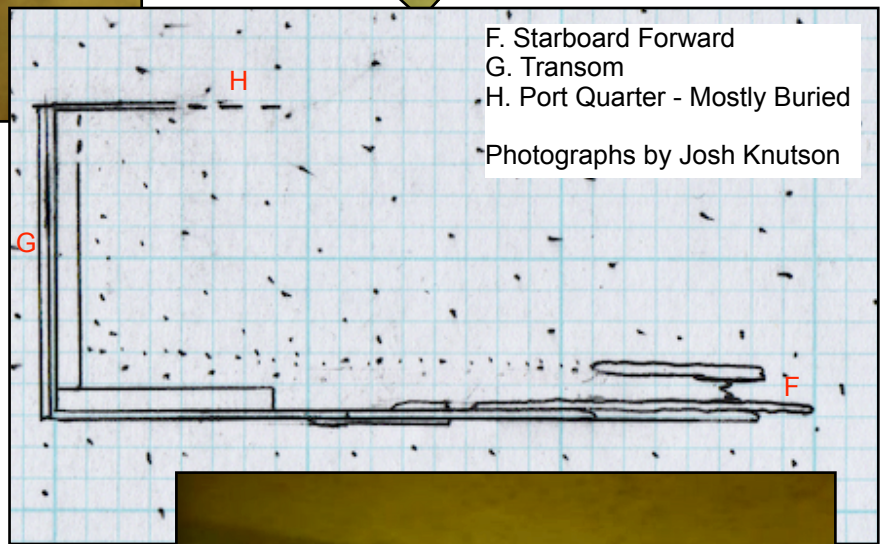
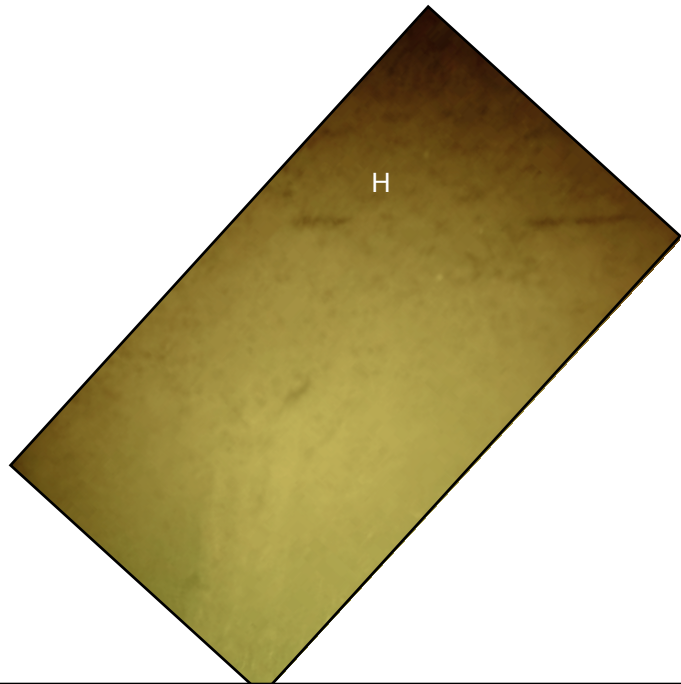
Photographs by Josh Knutson



D. Starboard Amidships  
E. Starboard Quarter  
F. Starboard Forward

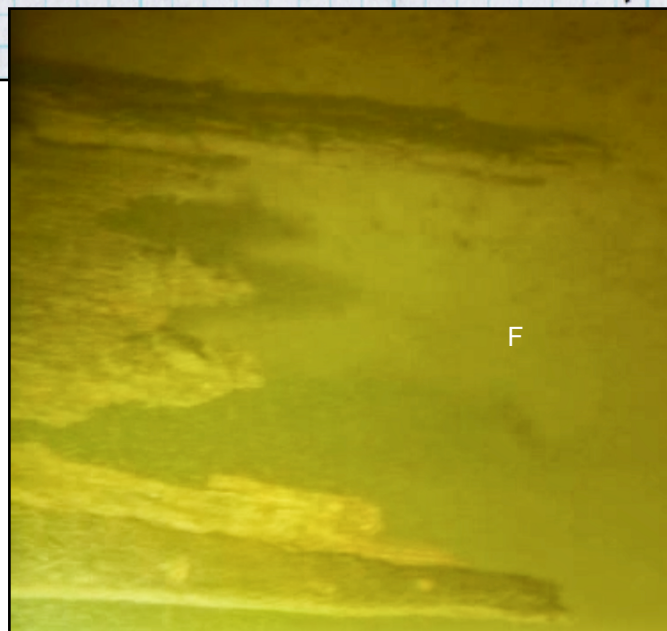
Photographs by Josh Knutson





F. Starboard Forward  
G. Transom  
H. Port Quarter - Mostly Buried

Photographs by Josh Knutson





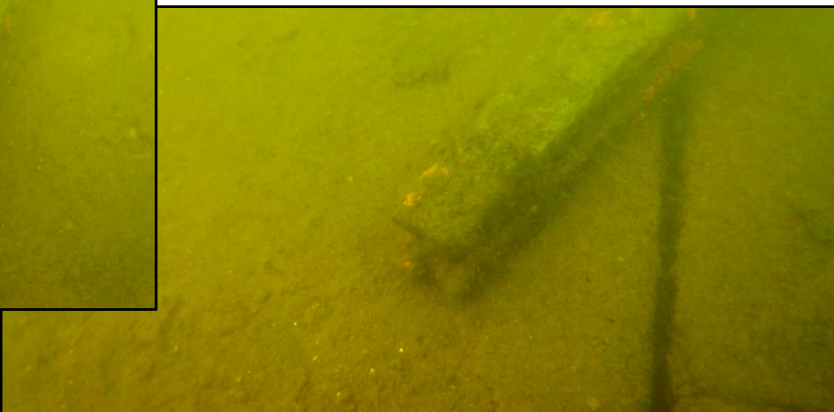
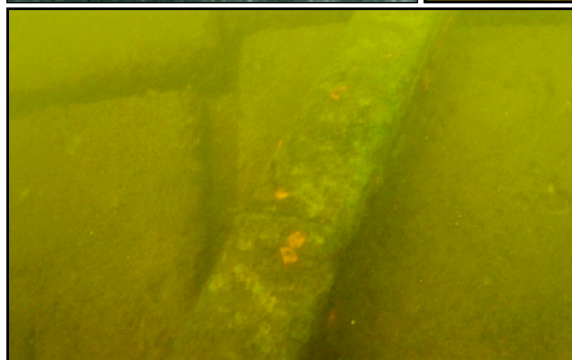
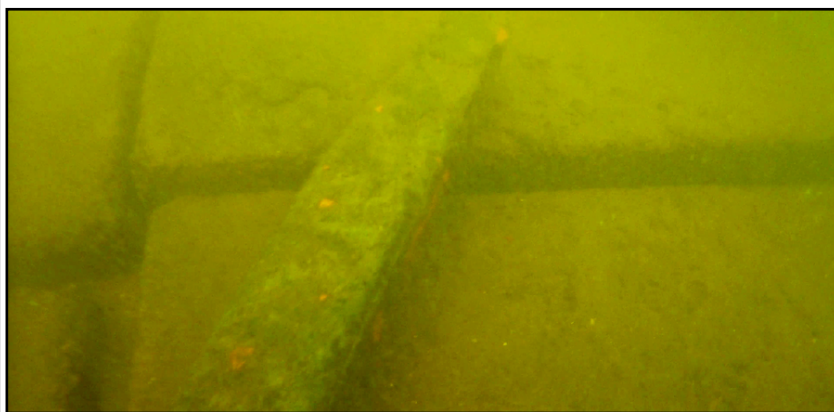
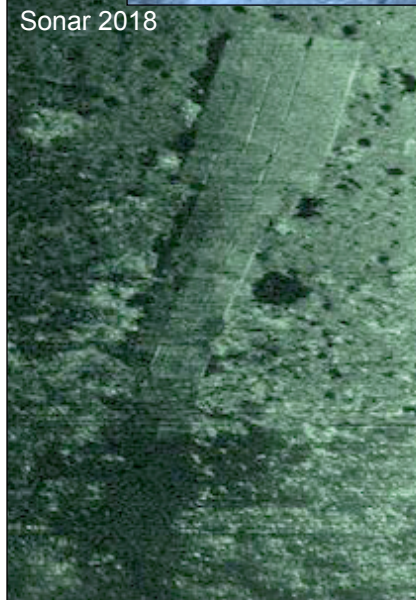
## Big Dock (Anomaly 22)

Sonar footage recorded in 2018 clearly indicates that Anomaly 22 is a very large dock lying on the bottom of the lake in shallow water. Initially MHM surmised that the dock collapsed into the lake at some point. However, after SCUBA reconnaissance during the MSLNA-3 Project, MHM now contends that the dock was constructed to lie on the lake bottom, probably during the excessive multi-year drought of the 1930s; it did not collapse. Once Lake Johanna's water level returned to normal, the dock became submerged. The Dock is approximately 15.00 feet wide at its widest point and 100.00 feet long. It is comprised of rectangular sections; how - or if - these sections are attached to each other is unknown. The Big Dock is a protected maritime submerged cultural resource.



Sonar 2018

Limited visibility in Lake Johanna did not allow for wide-lens images to be captured. The confluence of 4 dock sections is seen below with a small I-beam resting on top (photographs by Josh Knutson).



### Life Guard Stand (Anomaly 27)

MHM's sonar footage of Anomaly 27 strongly suggested the object was a capsized pontoon boat or raft. Dive reconnaissance during the MSLNA-3 Project allowed MHM to identify Anomaly 27 as a metal Life Guard Stand lying on its side. Anomaly 27 is a protected submerged cultural resource.



Stand base and  
'leg' of Anomaly 27  
(Josh Knutson).



### Power Pole (Anomaly 30)

MHM's sonar footage of Anomaly 30 suggested the object might be a partially buried wreck. Dive reconnaissance during the MSLNA-3 Project allowed MHM to identify Anomaly 30 as a metal Power Pole. Anomaly 30 is a protected submerged cultural resource.



### False Targets (Anomalies 31, 24, 25)

Anomalies 31, 24, and 25 were possible human-made objects. MHM conducted dive reconnaissance on A31; it proved to be vegetation and bottom contours. New scans allowed MHM to determine A24 and A25 are false targets - most likely lake bottom contours.

### Conclusion

MHM identified the only 3 recognized wrecks on the bottom of Lake Johanna during the MSLNA-2 Project in 2018: the Corrugated Steel Wreck (21-RA-83), the Capsized Fiberglass Catamaran Wreck (Anomaly 29), and the Round Wreck (Anomaly 21). MHM's targeted re-scanning of Lake Johanna using improved down and side-imaging sonar during the MSLNA-2 Project produced significantly more detailed data. MHM recognized a 4th wreck (Anomaly 20), images with additional clarity of the Big Dock (Anomaly 22), and 5 other possible sites or objects (Anomalies 24, 25, 27, 30, 31). During the MSLNA-3 Project in Lake Johanna, MHM and a volunteer identified 1 new wreck, 2 new submerged maritime sites, 1 'other object', and 1 false target. Also during



this project, MHM's targeted side and down imaging sonar re-scanning of Lake Johanna allowed for the identification of 2 anomalies as false targets comprised of bottom contours/vegetation - without dive reconnaissance.

Specifically, the newly recognized wreck - now a Minnesota Archaeological Site - offers interesting data into the maritime history of the Lake Johanna area in terms of watercraft design and construction. Currently, 21-RA-85 is the oldest wreck on the bottom of the lake, likely sinking around 1905. The Flat-Bottomed Row Boat Wreck (21-RA-85) joins a series of other small wooden watercraft sites in the archaeological record that share certain attributes. Twelve Minnesota Archaeological Sites and 2 museum collection watercraft identified by MHM have many shared attributes with 21-SC-116, and she joins a list of significant small craft sites.<sup>1</sup> The most significant of these attributes include the wreck's flat bottom, square transom, and sharply raked bow. However, specific archaeological questions persist due to the fragmentary and buried nature of the site. In consideration of the Big Dock (Anomaly 22), MHM has identified 5 other docks or dock sections on the bottoms of Prior Lake and Lake Minnetonka.<sup>2</sup> However, none of these sunken docks come close to the size of A22, although Dock A54 in Prior Lake is long, but it is uniformly narrow. Surprisingly, the largest dock - A22 in Lake Johanna - identified by MHM is in the smallest lake so far surveyed using remote-sensing side and down-imaging sonar. As a whole, the MSLNA-3 Project produced interesting and significant results investigating 21 anomalies in 3 lakes in 3 counties using SCUBA. MHM dove upon and identified 8 wrecks, 4 maritime sites or objects, 2 cars, and 3 'other' objects in Prior Lake, Medicine Lake, and Lake Johanna. Of the 8 wrecks, MHM acquired Minnesota Archaeological Site Numbers for 6 of them: 5 in Prior Lake and 1 in Lake Johanna.

The wrecking processes responsible for the creation of Minnesota's submerged cultural resources have produced a variety of underwater sites. Identifying, comparing, and associating these new sites in Prior Lake, Lake Johanna, and Medicine Lake, along with known sites increases our understanding of the historical context within which these cultural resources operated or were exploited by Minnesotans. Future studies will greatly enhance our shared maritime history through the recognition of submerged cultural resources and the stories behind their construction and disposition. The diversity of nautical, maritime, and underwater sites so far identified by MHM in Minnesota's lakes are tangible examples of the rich maritime history of the area. Through research, diving on wrecks and anomalies to collect pertinent data, and ensuring that the collected information is accessible by the public, MHM will continue to investigate Minnesota's submerged cultural resources into the future. MHM continues to re-examine recorded sonar footage from completed remote sensing surveys. Targeted re-scanning has occurred in several lakes using knowledge gained from the comparison of anomalies that have proven to be wrecks or other submerged cultural resources in

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<sup>1</sup>Small flat bottomed wooden wrecks identified in other Minnesota lakes by MHM to date: Lake Minnetonka (21-HE-415, 21-HE-417, 21-HE-422, 21-HE-457, 21-HE-485, 21-HE-487, 21-HE-488, 21-HE-489, 21-HE-509, 21-HE-531), Medicine Lake (21-HE-518), Prior Lake (21-SC-116), West Hennepin History Center, and Museum of Lake Minnetonka. See MHM's *Lake Minnetonka Nautical Archaeology 1-9 Project Reports*, *Minnesota Suburban Lakes Nautical Archaeology 1-3 Project Reports*, and *Minnesota Small Craft 3D Scanning Project 1 and 3 Reports*.

<sup>2</sup>Docks and dock sections identified in other Minnesota lakes by MHM to date: Lake Minnetonka (Anomalies 368, 736) and Prior Lake (Anomalies 12, 62, and large dock Anomaly 54). See MHM's *Lake Minnetonka Nautical Archaeology 3 and 8 Project Reports* and *Minnesota Suburban Lakes Nautical Archaeology 1 and 2 Project Reports*.

past projects. With improved technology, future scanning projects will produce clearer data. The results of the MSLNA-3 Project summarized above is connected to all the work that came before and will come after its completion. At this point, watercraft located Minnesota's suburban lakes represent approximately 1,000 years of Minnesota's maritime history and nautical archaeology. In the historic period, the known wrecks represented in these lakes span around 140 years of local maritime culture. It is clear – even through this Phase 1 pre-disturbance nautical archaeological investigation – that the types of sites that exist in Minnesota's suburban lakes documented to date are diverse, archaeologically and historically significant, and worthy of great attention.



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